

Given name:_____ Family name:_____

Student number:_____ Signature:_____

UNIVERSITY OF TORONTO
Faculty of Arts and Science

ECO362H1F (Economic Growth)
Instructor: Kripa Freitas

FINAL
December 12, 2012

Duration: 3 hours

No Aids allowed

This examination paper consists of **13** pages and **6** questions. Please bring any discrepancy to the attention of an invigilator. The number in brackets at the start of each question is the number of points the question is worth.

Answer all questions.

This is a closed book, closed notes exam. All diagrams need to be clearly labeled and you must give arguments to support your answers for full credit.

For graders' use:

	Score
1 (20)	
2 (15)	
3 (15)	
4 (20)	
5 (15)	
6 (15)	
Total (100)	

1. Consider the Solow model where the production function is given by $Y_t = AK_t^\alpha L_t^{1-\alpha}$. Population grows at a constant rate of n and productivity, A , is constant. The investment rate is equal to the savings rate (s) which is constant.
 - (a) [5] Derive the equation that governs the evolution of the capital per worker ($k = (K/L)$). Show all your steps clearly for full credit.

- (b) [15] In this economy, suppose now that the savings rate depends on the per-capita income. Assume in addition that the *richer* people are, the *higher* their savings rate is. In particular, when per-capita incomes are high, i.e. for $y \geq y^*$ the savings rate is given by s_{high} . When per-capita incomes are low, i.e. for $y < y^*$, the savings rate is given by s_{low} , where $s_{high} > s_{low}$. What is your prediction for per-capita incomes and total GDP in this economy? Explain your reasoning and the intuition behind your predictions. *Space for answer continues on next page*

2. Consider the Solow model with the production function given by $Y_t = AK_t^\alpha L_t^{1-\alpha}$. Population grows at a constant rate of n , the savings rate is constant (s) and productivity, A , is constant.
- (a) [7] In a world with perfect capital mobility across countries, what determines the capital to labor ratio in a country? Why? Explain your reasoning *Question continues on next page*

- (b) [8] How does this compare to the capital - labor ratio in a closed country where the only available funds for investment come from domestic savings Please explain your reasoning carefully.

3. Consider the Malthus model where output is produced using land (T) and labor (L) in the following way $Y_t = AT^\beta L_t^{1-\beta}$ where $0 < \beta < 1$. The quantity of land T , and the productivity A are constant. The growth rate of labor depends on per capita incomes. In particular, suppose $L_{t+1} = (\pi y_t)L_t$ where π is a constant.
- (a) [5] Derive the equation for the evolution of per capita incomes. i.e. y_{t+1} in terms of y_t . Show all your steps and working clearly for full credit.

- (b) [10] Consider a country in steady state. Suppose that there is an earthquake in which half the population dies and half the land is permanently made unfit for production. What would be the effects on the economy when this happens? Specifically describe the effects on per capita income (y) and population (L) in words. Explain your reasoning and make sure any diagrams are clearly labeled.

Space for answer continues on next page

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4. Short answer questions:

- (a) [10] What are the economic benefits of social capital?

- (b) [10] How does a higher level of inequality affect capital accumulation in an economy? Why? Explain your reasoning.

5. [15] Acemoglu, Johnson and Robinson in their article "Understanding prosperity and Poverty: Geography, Institutions and the Reversal of Fortune" examine the relative importance of geography and institutions in determining prosperity. What do they argue is more important and discuss one way they provide evidence for their claim?.

Space for answer continues on next page

6. [15] What do Sokoloff and Engerman argue is one possible long-run effect of inequality on growth? Discuss the evidence they provide to support their argument. *Space for answer continues on next page*

Rough work - will not be graded

End of examination
Total pages: 13
Total marks: 100

